Accessories

Software

Quick and Smart

Networking

Distributed Control

Control

Easy Interface

Power

Drive Protection

Complete Industrial Automation Solutions require a multitude of components for a wide range of applications. Control Techniques offers an extensive line of accessories designed to easily integrate our high performance drives into your equipment, systems, and/or process line.

Unisoft, CTSoft, SESoft and MentorSoft make all of our drives easy to program and simple to setup. Our Windows based configuration tools make start-up fast.

Our programming and utility tools include SyPT, a multi-drive Integrated Development Environment (IDE) allowing the designer to code, download and debug distributed applications from a single workstation attached to the CTNet network.

With the multitude of communication protocols available today, CT allows you to work in the language of your choice. Our coprocessor option modules interface directly with most standard industrial networks including DeviceNet, Profibus DP, InterBus-S, CANOpen, and others.

To maximize your equipment performance or process automation system, CT provides connectivity from SCADA through remote keypads and all points in-between. Our unique open communication platform allows drive-to-drive, drive-to-PLC, drive-to-I/O and drive-to-operator interface communication.

Control Techniques provides DB Resistors, isolation transformers, filters, and line and load reactors that protect your drive system and enhance safe operation.

Software
Drive Configuration Tools

UniSoft, CTSoft, MentorSoft, SESoft

UniSoft, CTSoft, MentorSoft and SESoft are complimentary Windows based drive configuration tools designed to enable the complete control and display of all parameters within a drive. The "Softs" provide valuable drive data storage, retrieval and programming functions. These Softs can be used off-line in the office or on-line on the plant floor.

Parameter programming and monitoring may be done using the menu list screens or dynamic graphical flow diagrams. Like the drives, parameters are grouped into logical menus of related parameters. Help menus and parameter descriptions are accessible by simply double clicking on the parameter of interest.

In addition to the parameter programming screens, function specific screens are provided. These include Drive Terminal Connector Configuration, Parameter Compare Functions (to disk or default files), and a User Defined Screen that allows up to 15 parameters from various menus to be displayed on a single screen.

CTSoft, the newest member of the Softs family, has a Drive Set-up Wizard that walks you through the basic set-up of a Unidrive or Unidrive SP, and includes a Motor Database that may be modified to include the customer's motors. CTSoft conveniently provides a method to save multiple drive setups in one project group. Its multiple window viewing capbility makes CTSoft the ideal commissioning tool.

FREE Software

Some of its many features include:

- Built-in reference manuals and search functions that provide extensive "Help" files for both the drive and the Soft.
- Graphical and dynamic illustrations of analog and digital I/O and internal signal flow.
- Drive can be Reset, set back to factory defaults and configurations stored via the Soft.

PC Specifications:

- Microsoft Windows 3.1X, Windows 95 / 98 / 2000 / Windows NT 4.0 / XP; CTSoft requires Windows 98 or higher.
- 486 processor (minimum); Pentium processor or higher recommended.
- 8MB RAM, 4MB free hard disk space, RS232 port.

PC / Drive Communication

Drive	"Soft" Catalog Number	Drive / Cable Connection	Serial Communication*	Catalog Number**
Unidrive SP	CTSoft	Direct to Drive	2-wire RS485	CT Comms Cable
Unidrive, Commander GP	UniSoft	UD71 option module	RS232	CTD-PC-232-XXX
Unidrive	UniSoft	UD7X option module	RS485	CTD-PC-485-XXX
Quantum III / Mentor II	MentorSoft	Direct to drive or MD29 / AN	RS485	CTD-PC-485-XXX
Commander SE	SESoft	Direct to drive (RJ45 port)	2-wire RS485	CT Comms Cable

* For operational distances beyond 8 feet, when establishing a permanent serial connection, or when communicating with multiple drives, RS485 communication is required.

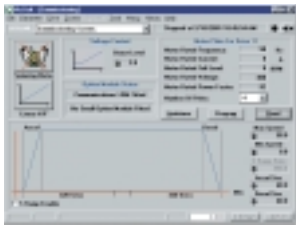
** XXX=ft

Sample Screen Views

Commissioning

Commissioning Screen – displays motor map parameters

▼ *Unidrive*



▼ *MentorSoft*

▲ *CTSoft*

Flow Control

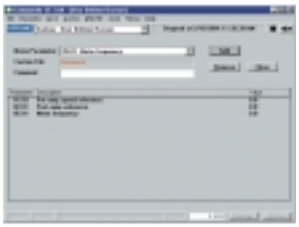
▼ *Menu Screen* – displays parameters associated with a specific function

▲ *Connector Details*
– displays all digital and analog inputs

▼ *General Flow Control* – displays all I/O and associated parameters

User Details

▼ *User Defined Screen* – 15 key parameters chosen from various menus displayed on one screen

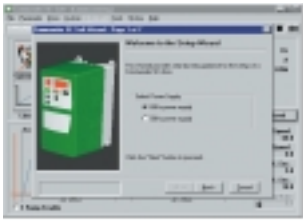


▲ "Help" file
– typical parameter definition screen

SESoft

Additional features of SESoft:

▼ *Set-up Wizard* – seven screens that walk through the basic set-up process of the Commander SE

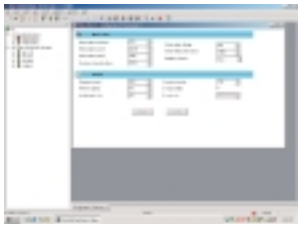


▲ *Monitor Screen*
– displays six key motor / drive values in real-time

CTSoft

Additional features of CTSoft:

▼ *Project Management*



▲ *Multiple Window Display*

Software
Programming and Utility Tools

System Programming ToolKit (SyPT)

SyPT (System Programming ToolKit), a multi-drive Integrated Development Environment (IDE), allows the designer to code, download and debug distributed applications from a single workstation attached to the CTNet network.

SyPT provides three ways to fashion an application. Drive Programming Language (DPL) is a simple computer language patterned after BASIC with drive extensions. IEC 61131-3 compatible ladder logic and function block diagram editors provide industry-standard graphical programming for those who prefer those methods.

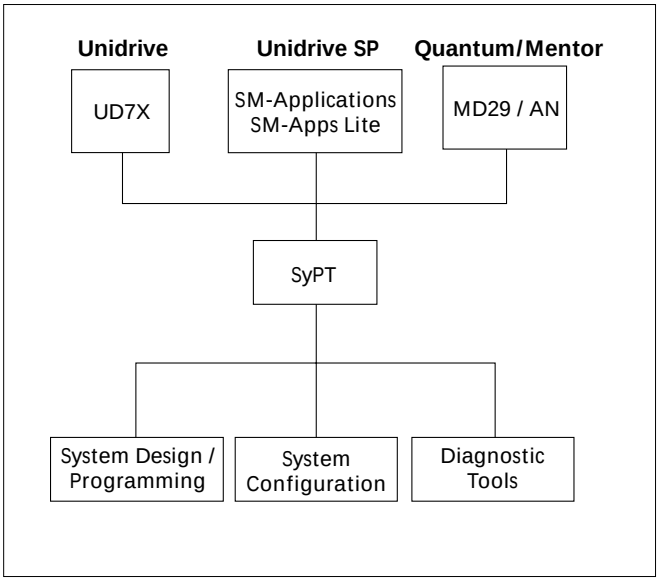
SyPT applications are real-time and the designer can debug over the network with full control of each task including start / stop, breakpoints and single stepping. The graphical programming editors support animation features similar to PLC systems. A network-cognizant watch window feature allows the designer to track variables and parameters in real-time anywhere on the CTNet network.

Option Module Connection Requirements

SyPT is used in the Unidrive (UD7X), Unidrive SP (SM-Applications and SM-Apps Lite) and Quantum / Mentor (MD29 / AN) coprocessors. These powerful coprocessors can significantly extend the range of applications of the Unidrive AC and Quantum / Mentor DC Drive families. The coprocessors employ a 32-bit RISC microprocessor that executes under a multi-tasking run-time kernel.

Intimacy makes our coprocessors superior to external PLC process controllers. They achieve high-speed drive interaction by virtue of dual port RAM access into drive memory space. This feature, in combination with the powerful embedded multi-tasking real-time kernel and high-speed math execution, provide the ultimate platform to achieve "closed-loop real-time" control without communication delays between the drive and the process controller.

Using these coprocessors, true distributed control can be achieved, enabling the system designer to accomplish complex algorithms for demanding time-critical process control system requirements typical of today's industrial needs.



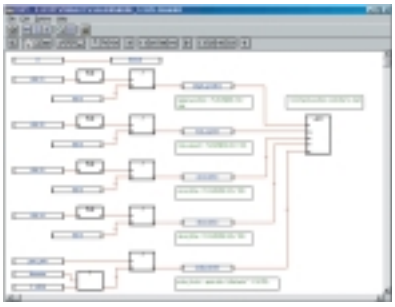
SyPT (System Programming Toolkit)

System Design

Program Editors:

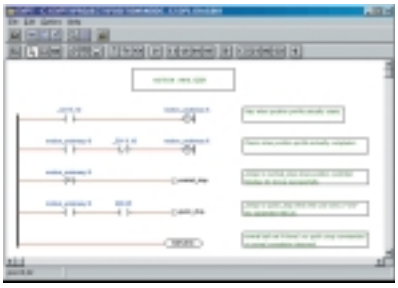
Function Block Diagram (FBD) – performs math or processes signals

- >140 mathematics, Boolean, and communication function blocks
- User defined and created function blocks
- Signal processing: 32-bit integer or 64-bit floating point math operations



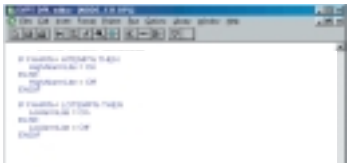
PLC Ladder Diagram (LD) – used for logical decision making

- >2000 rungs of executable ladder logic
- Rung annotation supported
- Chroma coding indicates contact / coil / rung activity during run-time



Drive Programming Language (DPL) – manipulates communication data

- Enhanced BASIC-like language provides easy access to drive parameters
- Built-in real-time operating system for seamless execution



Diagnostic Tools:

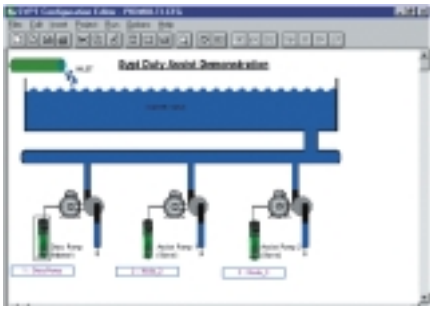
Powerful on-line debugging tools permit single step execution and setting of breakpoints

Watch Window – monitors any node's parameters and program variables in real-time. Provides graphical tools, including dynamic bar graphing and multiple trend plots, to allow the user to create a vivid view of code "in-action"

Task Manager – allows the single stepping of individual tasks in a node

System Configuration:

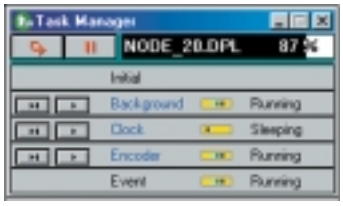
This tool is used to create customized single or multi-drive applications



- provides a convenient project container for housing the applications

Software	Catalog Number
SyPT with parallel port hardware key (dongle)	SYPT-STD
SyPT with USB port hardware key	SYPT-USB
SyPT-Lite for the Unidrive SP (Limited Functionality)	SYPT-LITE

Multi-tasking Architecture



SyPT's multi-tasking architecture allows easy implementation and segmentation to simplify "real-time" process control algorithms and fixed-time base calculations. The designer can select those jobs that require highest attention and those that only need occasional attention in order to optimize coprocessor utilization.

User programmable tasks listed in order of execution priority:

Initial – runs system variable initialization and pre-calculations at reset and power-up

Event – similar to hardware interrupt. Can be triggered by a high-speed digital input, counter/time unit, or fieldbus-synchronizing message.

Speed (Unidrive family only) – synchronized task to the internal drive speed loop.

Clock – runs from a User-assigned time clock, selectable 5 – 100 mSec. High priority clocked tasks can be set as short as 1 mSec.

Background – runs when no other tasks are dispatched (asynchronous)

Error – runs when an error occurs, for recovery processing

PC Specifications:

- Single-user license with hardware key
- Microsoft Windows 3.1x, 9x, NT, 2000, ME and XP compatible
- 486 processor (minimum); Pentium processor or higher recommended
- 8 MB RAM, 20 MB of free hard disk space
- RS232 port

SyPT Interface:

- Multi-drive connection through CTNet network via ISA or PCMCIA network interface card
- Single-drive connection through an RS232 link (cable: #CTD-PC-232-008) with Unidrive / Mentor / Quantum. RS485 link (cable: CT Comms Cable) with Unidrive SP.

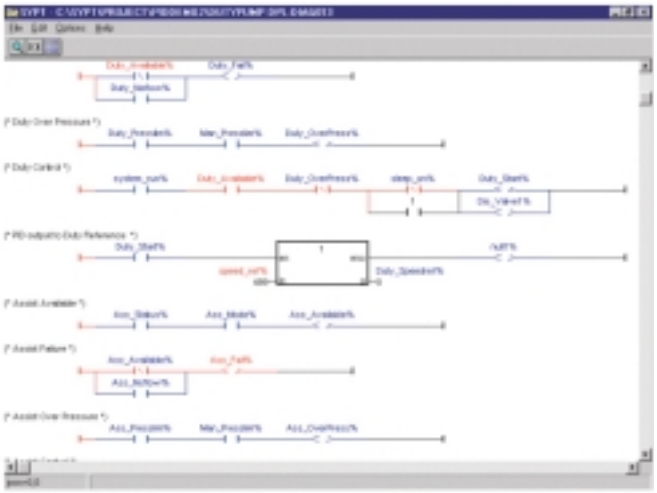
SyPT Lite Programming (Unidrive SP only)

SyPT Lite is a single-drive programming tool designed for simple and intermediate level programming of custom applications. SyPT Lite can be used to program the built-in PLC controller in a base Unidrive SP or a Unidrive SP equipped with an SM-Apps Lite option module.

Specifications

Hardware	Tasks	Executable Memory	Number of Downloads
Base Drive PLC	Background	4k	100
SM-Apps Lite	Background or clock	10k	100,000

PLC Ladder Diagram



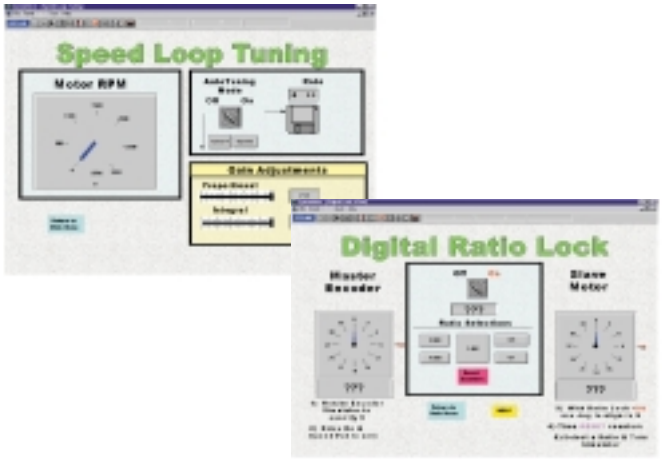
Visualization Tool (System Wise)

SystemWise is a Windows based visualization tool for the Mentor II, Quantum III and Unidrive / VTC drives. It enables the drive technician to create remote control screens for drive system monitoring and setup. SystemWise provides a variety of adjustable virtual tools such as meters, dials, sliders, LEDs, and pushbuttons that can be used to create custom displays and control panels. The control panels can then be placed over a customized graphic background that depicts the system process. Using SystemWise, the drive technician can create customized screens that greatly facilitate drive setup, tuning and general remote monitoring for each drive section or machine process.

SystemWise Interface:

- Single-drive connection through an RS232 link (cable #CTD-PC-232-008)
- Multi-drive connection through an RS485 link
- Network-wide connection through CTNet via ISA or PCMCIA network interface card

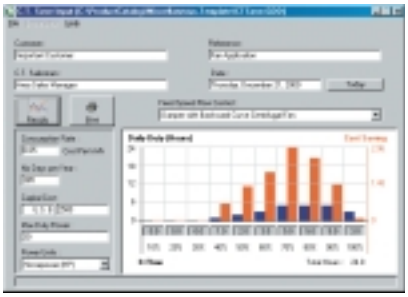
FREE Software



Energy Saving Tool (CTSave)

CTSave is a complimentary Windows based software designed to display the energy and money saved by users who utilize CT drives instead of conventional products. Information collected by the program includes the cost/kW-hour, maximum power in kW or HP, annual consumption rate, and type of application (disc throttle, inlet guide vanes, dampers with forward or backward curve centrifugal fan). As the user enters or modifies the data, the savings at various flow rates are displayed graphically alongside the financial detail of savings, including the payback period. Both the data used in calculations and the results may be saved, recalled, edited and printed as required.

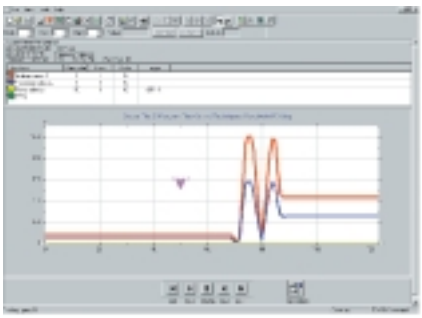
FREE Software



Maintenance Tool (CT Browser)

CT Browser is a stand-alone parameter maintenance tool intended for field engineers and customers who wish to do their own system maintenance. Offered to customers at no charge, CT Browser is a Windows application that provides a spreadsheet view of drive parameters. CT Browser makes it easy to modify parameters and save and restore them to disk.
Other handy features include bar graphs, a real-time oscilloscope, a transient recorder and an automatic archiving system. The CT Browser is ideal for those customers who wish to maintain their CT systems without incurring the expense of the SyPT system programming toolkit.

FREE Software



Networking
Communications

Fieldbus / Protocol

Communication networks allow large amounts of data to be transferred quickly to and from network nodes. Using a network fieldbus can significantly reduce system wiring requirements and installation costs, while enhancing wiring integrity.

The CT fieldbus interface modules and cards provide high-speed communications with the popular networks and protocols. Each interface uses RS485 isolated communications for inter-drive voltage isolation and noise immunity.

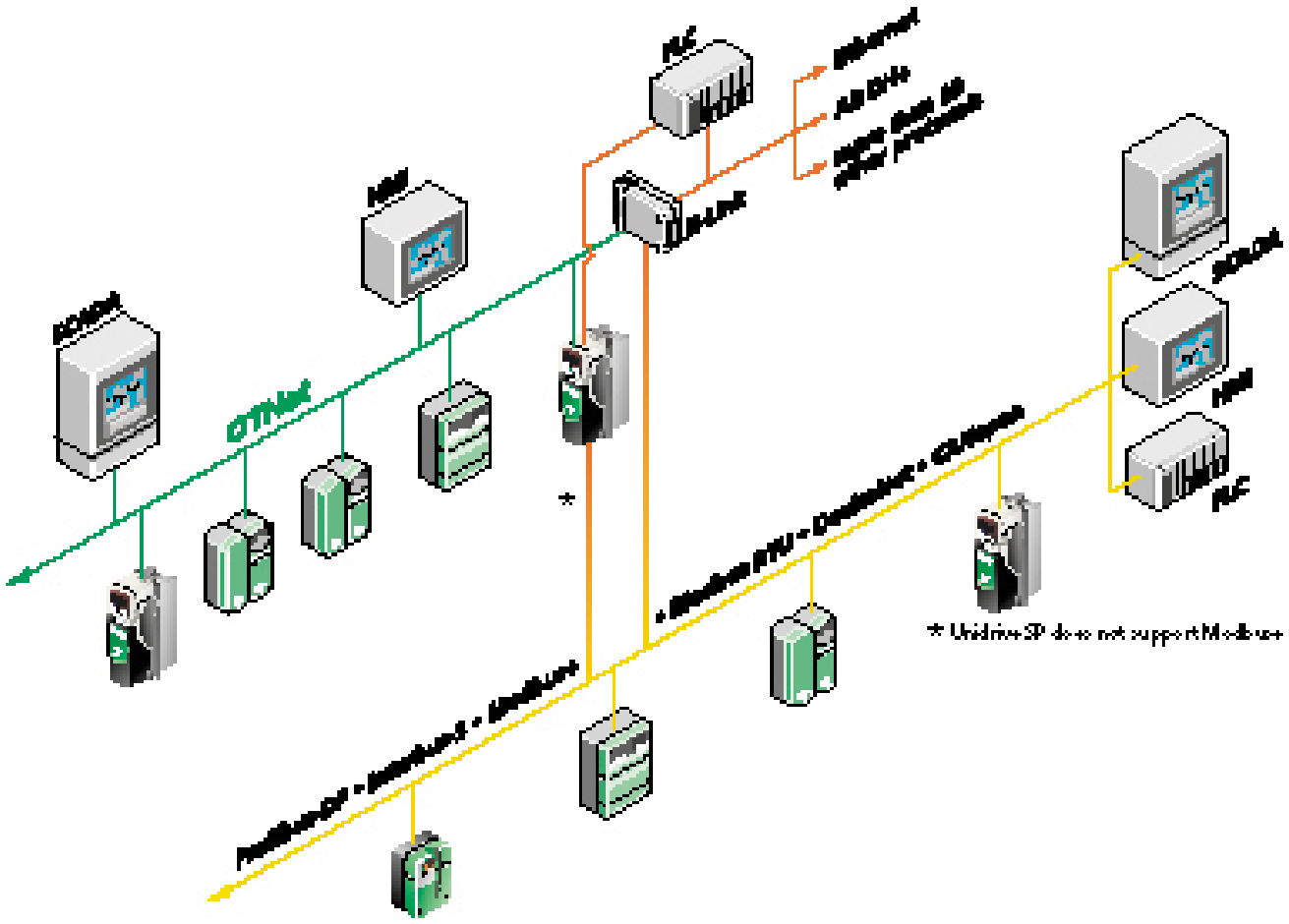
Network / CT Drive Compatibility

Communications Network	Unidrive	Quantum III / Mentor II	Commander SE	Unidrive SP	Node Configuration
Profibus-DP	UD73, UD73-COM①	MD-24	SE73	SM-Profibus	Slave
Interbus-S	UD74, UD74-COM①	MDIBS	SE74	SM-Interbus	Slave
CTNet	UD75-RevD	MD-29AN	③	SM-Applications②	Peer-to-peer
Modbus+	UD76, UD76-COM①	9500-9100	N / A	N/A	Peer-to-peer
DeviceNet	UD77, UD77DN-COM①	MD-25	SE77DN	SM-DeviceNet	Slave
CANopen	UD77CO, UD77CO-COM	N / A	SE77CO	SM-CANOpen	Slave
Modbus RTU④	UD70	9729-9000	Standard	Standard/SM-Applications②	Slave

① Network communications only. RS232 port and 32-bit coprocessor are not available.
② SM-Applications module includes coprocessor.
③ Connects to CTNet via RS485 to the Unidrive.
④ Modbus RTU's are available on all UD7X modules except for UD71 and UD78.

Universal Connectivity

True Distributed Control



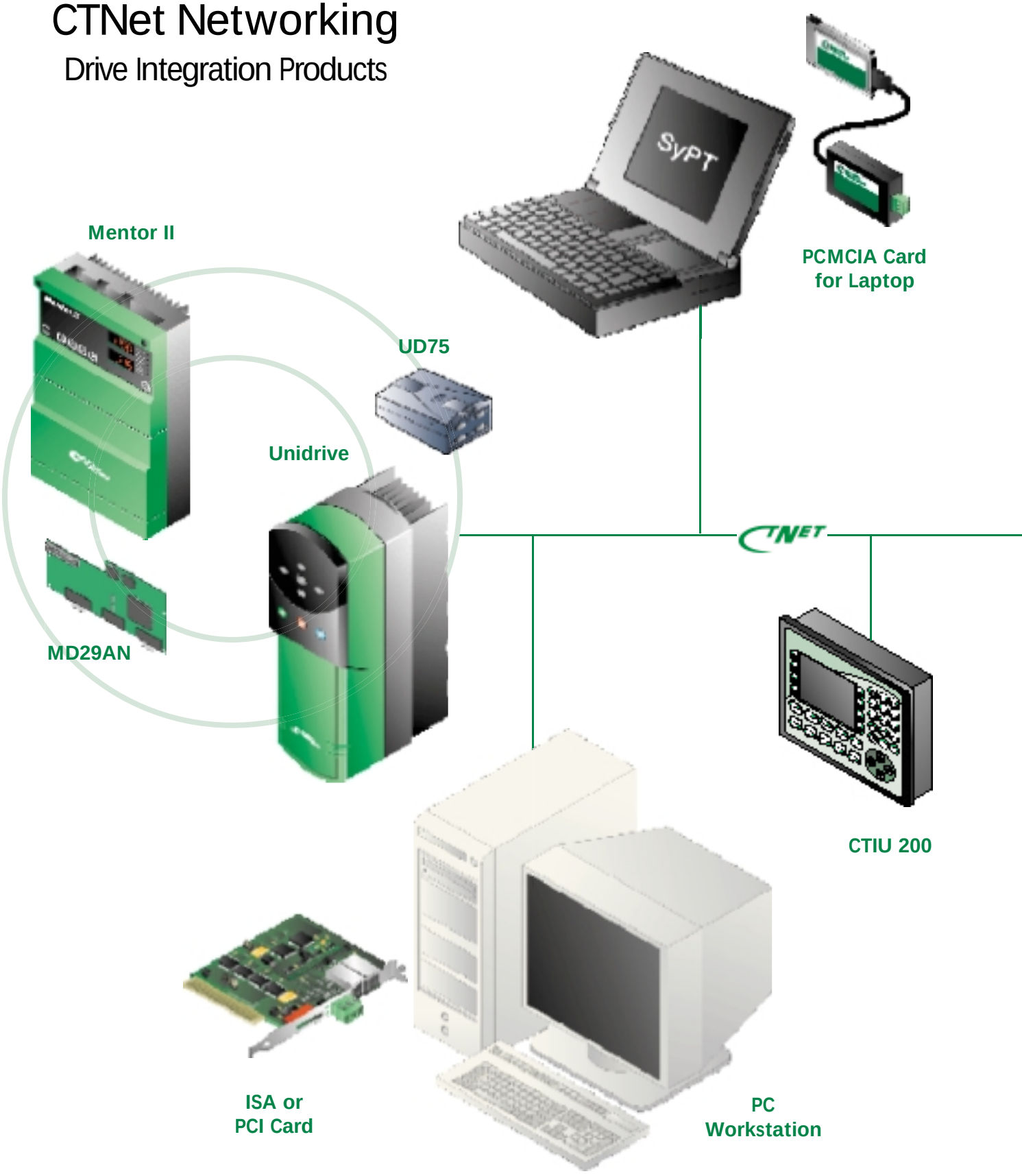
Networks

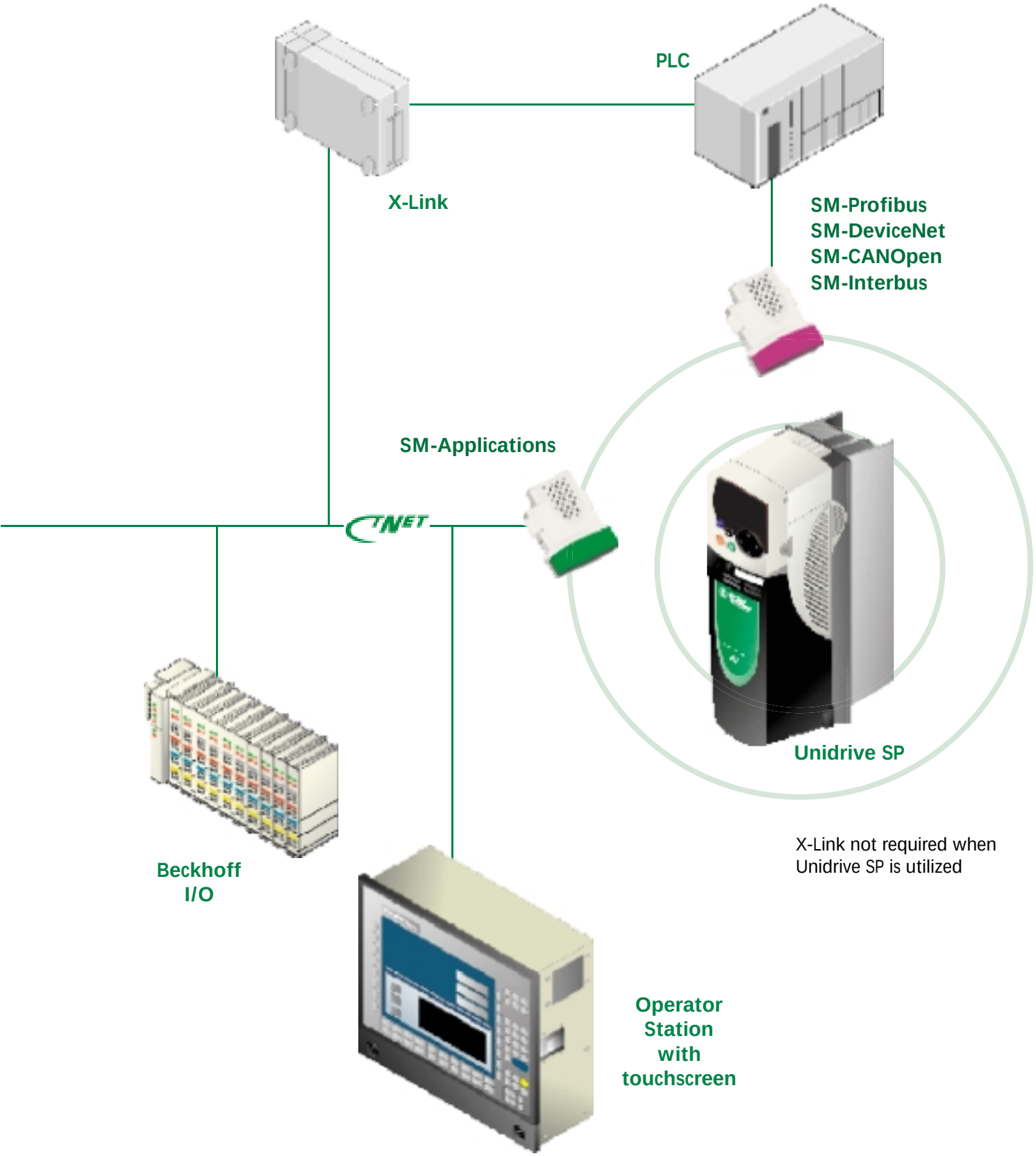
Communications Network	Node Configuration	Max. Data Rate / Trunk Length (bps / m)	Selectable Rate (bps)	Max. # Nodes per Network	Max. # Nodes w/o Repeaters
Profibus-DP	Slave	1.5M / 200	9.6K – 12M①	125	31
Interbus-S	Slave	500K / 400	500K	32	32
CTNet	Peer-to-peer	2.5M / 200	1.25 – 5M	255	20
Modbus+	Peer-to-peer	1M / 450	1M	64	32
DeviceNet	Slave	500K / 100	125 – 500K	64	N / A
CANopen	Slave	500K / 100	125 – 500K	64	N / A
Modbus RTU	Slave	N / A	300 – 38.4K	N / A	N / A

① UD73 and UD73COM maximum bps = 1.5M

High Performance CTNet Networking

Drive Integration Products





X-Link not required when Unidrive SP is utilized

CTNet Networking
Drive Integration Products

Control Techniques Distributed Control Solution

CTNet is a comprehensive line of products enabling the industrial designer to create high performance and cost effective distributed control solutions. CTNet combines intelligent coprocessors installed in Control Techniques' AC and DC drives with a high-speed peer-to-peer fieldbus that allows the control algorithms required by an application to be distributed. This reduces the CPU loading and network bandwidth required at any single location, such as a PLC or other controller.

At-A-Glance

Function	Description	Catalog Number
Drive Coprocessor	Includes CTNet fieldbus connections and coprocessor	UD75-RevD * (Unidrive), SM-Applications (Unidrive SP), MD29AN RevD * (Mentor/Quantum)
Network Accessories	3 port Hub, provides connectivity to 3 CTNet segments	CTNet-Hub-RevD*
	Fiber Optic Repeater	CTNet-FIB-RevD*
	3 port Hybrid Hub, for connectivity between current and previous CTNet versions	CTNet-Hybrid Hub
	CTNet bulk cable	CTNet-xxx
Remote I/O	Beckhoff bus coupler	SSP7200-RevC
HMI Display	Operator Interface Unit	CTIU200
	CTNet comms card	CTIU200-CTNet-RevC
Software	Systems Programming Toolkit (parallel port hardware key)	SyPT-STD
	Systems Programming Toolkit (USB port hardware key)	SyPT-USB
	Maintenance Tool	CT Browser
	Virtual Control Panel	Systemwise
	Software Drivers	CTNet API CTNet OPC
PC Network Cards	Laptop Computer	CTNet-PCMCIA-RevD
	Desktop Computer (w/PCI bus)	CTNet-PCI-RevD*
	Desktop Computer (w/ISA bus)	CTNet-ISA-RevD*
Network Bridges	Bridge between CTNet and DeviceNet, Profibus DP, Interbus, Modbus and CANOpen	Unidrive SP (Pages 27, 36)
	Bridge between CTNet and other protocols	X-Link (2510-00010)

UD75 / MD29AN / SM-Applications

Control Techniques Unidrive / Unidrive SP AC drives and Quantum/Mentor DC drives accept plug-in coprocessor modules as a standard accessory. The UD75 (Unidrive) and MD29AN (Quantum / Mentor) plug-in coprocessors include the CTNet high-speed peer-to-peer fieldbus to allow the modules to communicate with one another.

The CTNet-equipped coprocessors are based on an Intel i960 32-bit CPU with a minimum of 256 Kbytes of program storage and 48 Kbytes of variable storage for user applications. In addition to the CTNet fieldbus, serial ports are available for RS232 and RS485 communications. The coprocessors also include a built-in counter-timer unit and a canned position controller application.

*Important Revision Information

CTNet components sold prior to 1-1-03 utilize a different product revision than shown in this catalog, Rev D. Please contact Control Techniques when purchasing components for older installations.

CTNet Fieldbus

The CTNet fieldbus is a 5 Mbit token ring network that supports peer-to-peer communications. Utilizing the field-proven ANSI/ATA 878.1 ARCNET standard as a foundation, CTNet includes a custom protocol stack that supports cyclic data and "one shot" transactions. The CTNet fieldbus employs an RS485 transformer-isolated physical layer to allow usage of a convenient and inexpensive two-wire shielded, non-phasic cable.

Two methods of data exchange are supported: cyclic data and non-cyclic data. Cyclic data exchanges are pre-programmed block transfers (20 registers max.) between coprocessors at either a fast or slow rate. Non-cyclic exchanges are asynchronous transfers initiated by application programs or SCADA / HMI devices.

X-Link Network Bridge (2510-00010)

For those applications requiring connection of CTNet systems with third-party networks and PLCs, the X-Link Bridge provides a solution. The X-Link engine accepts a CTNet ISA card and a third-party network card, such as A-B Data Highway™. Special driver software allows communication between the two networks. Users may map registers on a PLC to parameters in a CTNet-equipped drive and once specified, the exchanges run continuously using the X-Link box as the mediator. The X-Link currently supports over 50 industrial networks and is the only system available that can connect to an A-B Data Highway.

Repeaters

For extending CTNet cable segments and creating star topologies, there are three types of repeaters available:

Description	Catalog Number
Two-output (3-port) Repeater (Hub)	CTNet-Hub-Rev D
Twisted-pair to Fiber Optic Repeater	CTNet FIB-Rev D
Hybrid Hub for connecting previous versions of CTNet hardware to current versions	CTNet Hybrid Hub

CTNet Cable

Control Techniques supplies a high quality shielded twisted-pair cable suitable for high-speed data transmission. It is available in three standard lengths or any specified non-standard length.

Cable Length	Catalog Number
100 Meters	CTNet-100
200 Meters	CTNet-200
Non-standard (bulk in feet)	CTNet-xxx*

* xxx= number of feet

Beckhoff Remote I/O

The high-quality Beckhoff I/O system is available for CTNet systems. Beckhoff systems for CTNet include a SSP7200-Rev C bus coupler and a large variety of snap-on terminal blocks allowing up to 256 digital inputs or outputs and up to 100 analog inputs and outputs per bus coupler. Up to 64 Beckhoff I/O systems can be attached to a CTNet network. I/O points exist as CTNet parameters and can be easily read or written. Cyclic data transfers are also supported for efficient I/O sampling.

Contact Control Techniques for details on the wide range of available Beckhoff Remote I/O options.

CTIU200 Operator Interface Unit

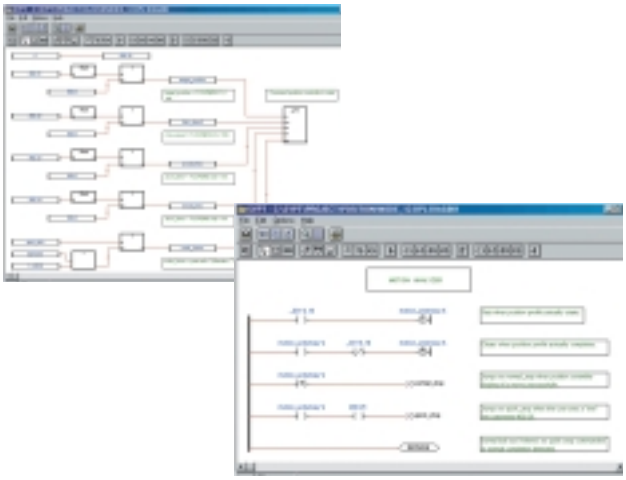
Control Techniques supports several HMI displays, and of these the CTIU200 model, with the CTIU200-CTNet-Rev C option, supports CTNet operations. The CTIU200 is a high-end operator interface unit featuring a 16-line, 40-character display, 37 keys, 300 pages of user-programmable displays, a scripting language, graphical charts and trends, recipe support and user-friendly modification of parameter values. A sophisticated Windows programming tool creates the custom application and downloads it into the CTIU200 for operation.

SyPT System Programming ToolKit

SyPT (System Programming ToolKit) is required to develop CTNet applications. This multi-drive Integrated Development Environment (IDE) allows the designer to code, download and debug distributed applications from a single workstation attached to the CTNet network.

SyPT provides three ways to fashion an application. Drive Programming Language (DPL) is a simple computer language patterned after BASIC with drive extensions. IEC 61131-3 compliant ladder logic and function block diagram editors provide industry-standard graphical programming for those who prefer those methods.

SyPT applications are real-time and the designer can debug over the network with full control of each task including start / stop, breakpoints and single stepping. The graphical programming editors support animation features similar to PLC systems. A network-cognizant watch window feature allows the designer to track variables and parameters in real-time anywhere on the CTNet network.

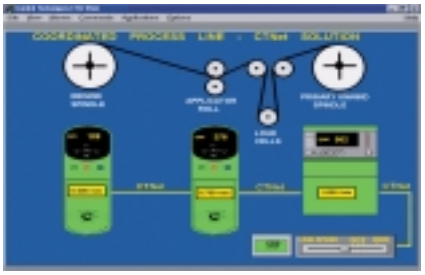


Software	Catalog Number
SyPT with parallel port hardware key (dongle)	SYPT-STD
SyPT with USB port hardware key	SYPT-USB

OPC Server

OPC Server is a Windows-based data server tool that allows any OPC-compliant application to access all parameters within Control Techniques drives and other equipment supporting the protocols: CTNet, MD29MON and CTANSI.

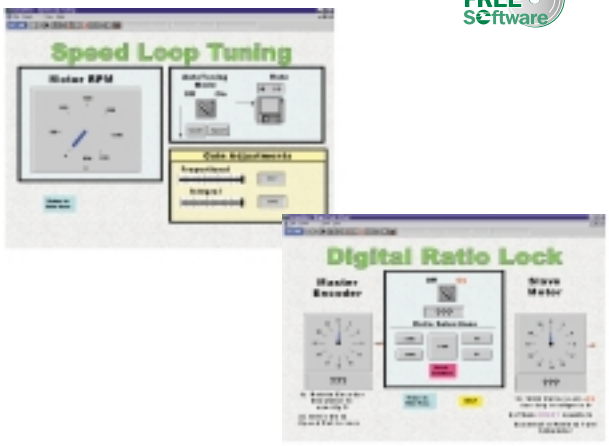
FREE Software



SystemWise

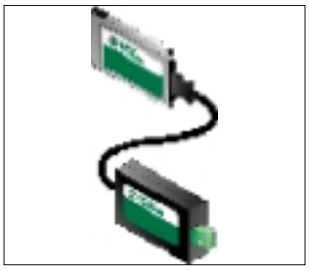
Control Techniques' SystemWise allows creation of simple HMI displays on industrial or laptop computers. SystemWise is much simpler than the full-fledged CT32 SCADA package, but allows the designer to create simple screens of controls and displays for monitoring or maintenance operations. The SystemWise application works on Windows-equipped computers and supports CTNet communications.

FREE Software



CTNet Network Interface Cards

For desktop and laptop computers, there are three types of CTNet network cards. All cards permit user specification of the node address, baud rate and IRQ (where applicable).



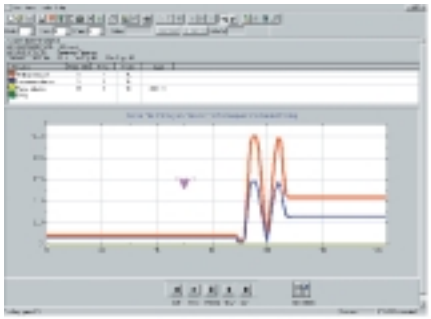
Network Application Card	Catalog Number*
Laptop Computer	CTNet-PCMCIA-Rev D
Desktop Computer w/PCI bus	CTNET-PCI-Rev D
Desktop Computer	CTNet-PCMCIA-Rev D

*CTNet components sold prior to 1-1-03 utilize a different product revision than shown above, Rev D. Please contact Control Techniques when purchasing components for older installations.

CT Browser

CT Browser is a stand-alone parameter maintenance tool intended for field engineers and customers who wish to do their own system maintenance. Offered to customers at no charge, CT Browser is a Windows application that provides a spreadsheet view of drive parameters. CT Browser makes it easy to modify parameters and save and restore them to disk. Other handy features include bar graphs, a real-time oscilloscope, a transient recorder and an automatic archiving system. The CT Browser is ideal for those customers who wish to maintain their CTNet systems and do not need the programming capabilities of SyPT.

FREE Software



Universal Power Supply

The universal power supply is a 24 VDC power supply with an output rating of 600 mA. It is ideally suited to provide power for various Control Techniques accessories. Some of these accessories include the various CTIU operator interfaces, UniOP keypads, CTKP and Beckhoff I/O.

Specifications

- 100 to 240 VAC 50/60 Hz input power
- 600 mA max. output current
- IP20 rated enclosure
- 14 to 140°F operating temperature
- Panel or Din rail mounting
- UL/cUL, UL508, CE marked, TUV

Catalog Number

- PS5R-B24

Dimensions

- 3.74H x 1.77W x 2.95D inches

Control
Operator Interface

CTIU

The CTIU product family provides a range of capabilities depending on the complexity of the drive application. They are designed for general-purpose use with our Commander SE, Unidrive, Unidrive SP, and Quantum III / Mentor II drives. The high-resolution, bit-mapped, adjustable back-lit LCD display supports up to 20 characters per line, eight lines (two lines in CTIU-50) per page.

On its 300 pages, a mix of drive menu items, status points, alarms, and fault conditions can be displayed as text (numeric or alphanumeric), dynamic bar graphs, live graphs, or trend plots. Embedded fields may be designated modifiable, enabling the operator to remotely change machine values and transmit them to the drive for execution. Higher end models offer multiple font sizes and graphical animations. CTIUSoft, the Windows based configuration software, supports approximately 100 PLC manufacturers.

A dedicated RS232 port provides easy connection to a PC for configuration. For fast field troubleshooting, each communication port has an LED that indicates signal "transmitting" and "receiving". The CTIUs employ easy-to-wire screw terminals for 2 or 4-wire RS485, multi-drop, inter-drive wiring, and RS232 for the simpler one-drive, one-display applications. The NEMA 4/12 rating provides rugged protection.

* Commander GP and Unidrive / VTC drives require a UD7X option module.

- **Up to 8 line, 20-character display**
- **Adjustable back-lit LCD display**
- **CTIUSoft, Windows based configuration software** FREE Software
- **WYSIWYG editor for display editing and formatting**
- **Sophisticated text and graphics features**
- **Real-time clock available**
- **Compatible with Commander SE / GP, Unidrive, Unidrive SP and Quantum III / Mentor II drives**
- **Supports multiple protocols including Modbus RTU and CT ANSI**

CTIU 50

- 2-line, 20-character adjustable back-lit LCD display
- Numeric keypad
- Page password protection
- Supports multiple protocols

CTIU 100 / 110

- Scalable bar graphs and horizontal fills
- Multiple font sizes
- Real-time trends and graphs
- Re-definable characters

CTIU 200

- Layered object-based graphics
- Bit-map Animations
- Options available for CTNet and CANopen
- Additional I/O supported

ISO 9002 APPROVAL · CE · N1652 · c UL us LISTED · 1 YEAR Warranty

Features: CTIU Operator Interface Units

Function Keys (configurable)

- Set, Clear and Toggle drive bits
- Set values
- "Go to" a page
- Keys mapped directly to drive

Pages

- 300 pages
- Status: controlled by drive
- Alarm: monitor drive / alarm bits
- Standard: operator interaction
- Eight embedded fields / page

Text and Graphics

- Multiple font sizes*
- Selectable flashing text
- Re-definable characters, enabling character graphics*
- Two - real-time trends and graphs per page* (200 displays multiple graphs / page)
- Layered object-based graphics**
- Bitmap animations**
- Scaleable bar graphs and horizontal fills*

Software (CTIUSoft)

FREE Software

- WYSIWIG page editor
- Wizards simplify page configuration
- Tool button bar
- Status bars
- Downloadable recipes
- Character editor
- Upload / download tools
- Approx. 100 protocols supported

Programming

- Uses simple script language*
- Math operations
- Timer intervention
- Conditional branching
- "Run a CTIU program"
- 1,024 Internal Registers
  Bit and System Registers
- Scheduling support (models with clocks)
- Background programs
- Function key mapping
- Internal self-test mode
- Page password protection

** CTIU-200 only

* Does not apply to CTIU-50

Specifications

Power Supply User supplied 8-32 VDC power supply (160 mA continuous, 260 mA / 4mSec. inrush)

Protocols Approx. 100 protocols supported e.g. CT ANSI, Modbus RTU, and CTNet (200 only))

Environmental Protection NEMA 4/12, IP65

Options

Catalog Number	Description
CTIU200-CTNet-Rev C	CTNet option for CTIU-200
CTIUSoft	Windows based programming software
CTIU-PC-232-005	Programming Cable

Dimensions*

Catalog Number	Height	Width	Depth
CTIU-50	4.4 (112)	7 (177)	2.4 (60)
CTIU-100	4.1 (105)	4.8 (121)	1.5 (38)
CTIU-110	4.1 (105)	6.8 (172)	1.5 (38)
CTIU-200	7.5 (190)	11 (280)	3.2 (80)

* Approximate, not to be used for construction purposes.

Dimensions: Inches (mm)

CTIU Operator Interface Units

Catalog Number	Lines per page*	Font Sizes	Function Keys		Numeric Keypad	Real-time Clock	Inter-CTIU Comms.	Real-time Plots / page
			Total	Programmable				
CTIU-50	2	1	14	10	Yes	No	No	No
CTIU-100	8	4	4	0	No	Optional	Optional	2
CTIU-110	8	4	16	10	Yes	Optional	Optional	2
CTIU-200	8	4	34	18 (10 legendable)	Yes	Yes	Standard CAN port	Multiple

* 20 characters / line

Universal Keypad (CTKP)

The CTKP Universal Keypad makes programming Control Techniques' most popular drives fast and simple. This remote keypad has a 2-line, 16-character, green back-lit LCD display. A built-in database defines all drive parameters in real units. Start, Stop / Reset and Reverse keys make pushbutton control quick and easy while five navigation keys provide fast browsing and modification of parameters.

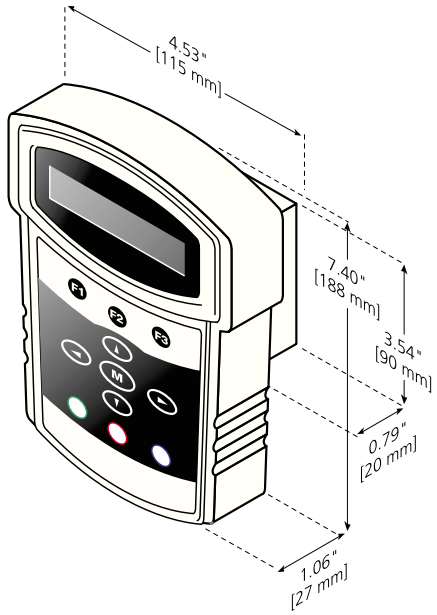
Customer-defined macro functions can be accessed through three programmable soft keys. The two line display can be programmed to display any drive parameter, apply a scale factor, offset and descriptive text. The 2 or 4-wire RS485 communications provides single or multi-drop connectivity with a combination of CT digital drives① and their option modules (UD7X series and MD29 / AN). (See cable options, page 158.)

Its IP-65 rating provides rugged protection whether it is hand-held or panel mounted. To further simplify installation, it's designed to be powered from a CT drive② rather than require an external power source.

① The Unidrive requires a UD7X option module.
② 24 VDC, 200 mA when supplied from a drive. Separate power supply requires fast-acting 24 VDC / 250 mA fuse.

- **Plain text parameter descriptions for CT digital drives**
- **Hand-held or panel mounted**
- **IP65 Rating**
- **2 or 4-wire RS485 for single or multiple drive connection**
- **Password protection**
- **Programmable display**
- **Suitable for use with Commander SE, Unidrive, Mentor II and Quantum III**

CTKP Dimensions



Remote I/O Box (I/O Box)

The I/O Box expands the I/O capabilities of the Unidrive, Mentor II and Quantum III drives. The I/O Box is connected to the drive through the application module (MD29 / AN, UD7X*) using an optically isolated RS485 serial link.

Specifications

Voltage	110 to 240 VAC ±10%
Frequency	48 to 62 Hz
Phase	1Ø
RS485 interface	Supports binary protocol at data rates up to 38.4kbaud for connection to a single drive.

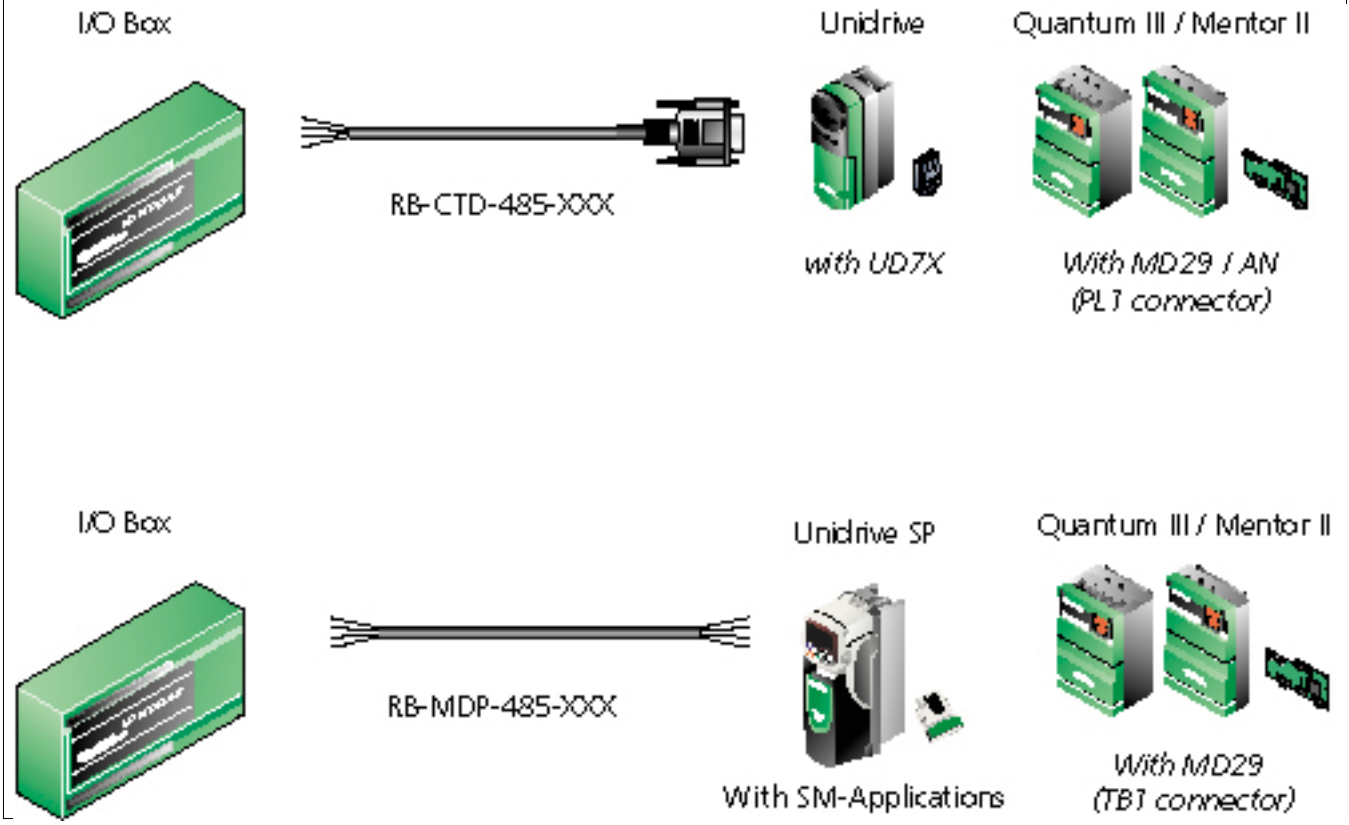
2 YEAR Warranty

Qty	Type / Description	Notes
1	Analog Input (12 bit)	±10 VDC, 100k Ohms or 4-20 mA, 100 Ohms
4	Analog Input (10 bit)	±10 VDC, 100k Ohms
3	Analog Output (10 bit)	±10 VDC, 5 mA
8	Digital Input	+24 VDC, 10k Ohms
8	Digital Output	+24 VDC, 100 mA (200 mA total for all outputs)

ISO 9002 APPROVAL CE N1652 c UL us LISTED 1 YEAR Warranty

Interconnect Components

I/O Box Cables



RB-CTD-485-XXX

RS485 cable dressed at I/O Box end, DB9-D male connector at drive end.

RB-MDP-485-XXX

RS485 multidrop cable dressed at I/O Box end and drive end.

Connectors

DB9F–Term

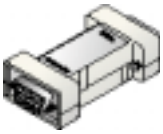
RS485 network connector; DB9 female connector on UD7X end; terminal strip on cable end.

DB9M-2I-DB9F

RS232 optical isolator; DB9 female connector on computer end; DB9 male connector on cable end. No power supply needed in most applications.

DB9M-2I-DB9F-D

For Desktop computers only, the RS232 optical isolator; DB9 female connector on computer end; DB9 male connector on cable end.



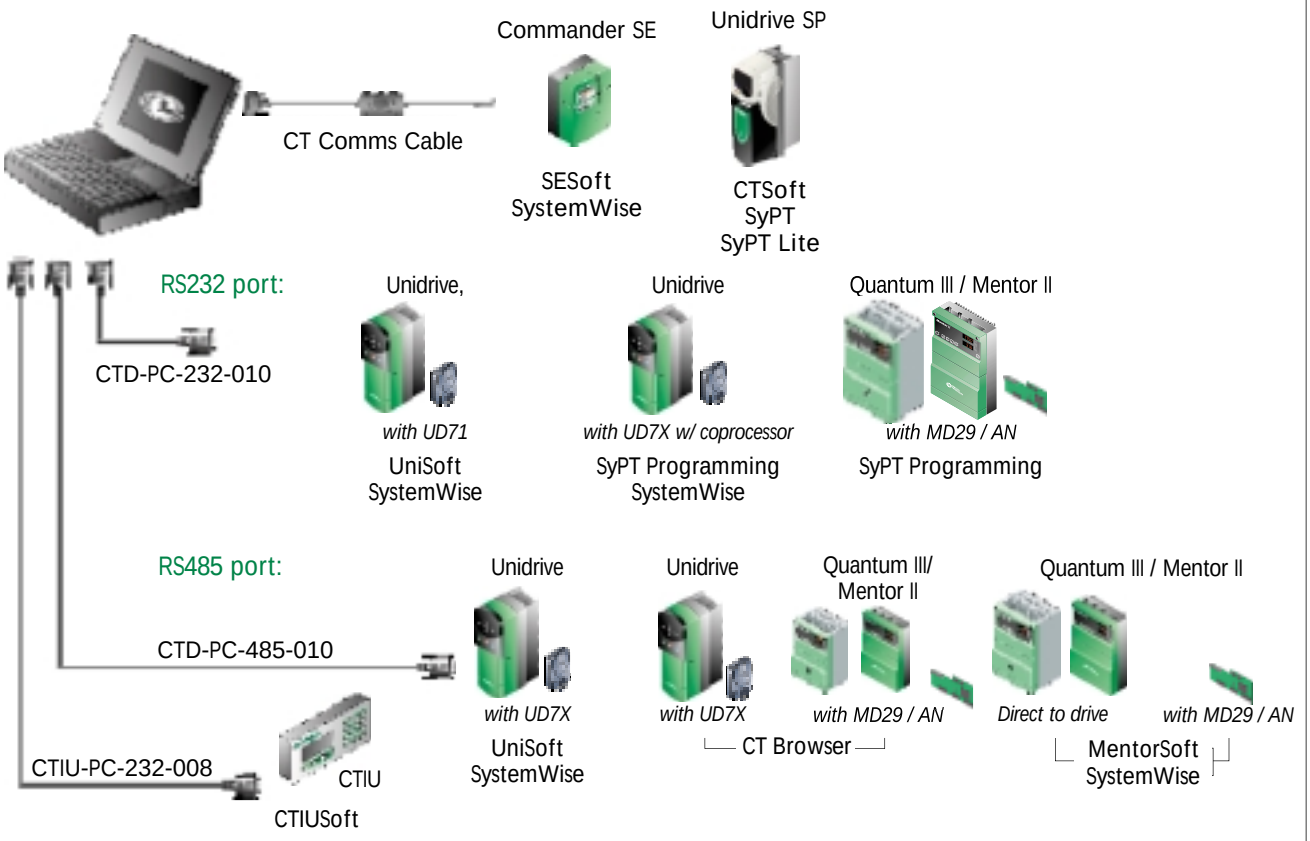
DB9F-42-DB9F

RS232/485 adaptor; DB9 female connector on RS485 end; DB9 female connector on RS232 end.

RJ45-5

RJ45 Splitter; accepts one RJ45 connector of input and 4 RJ45 connectors for output.

Software Interface Single-drop Cables



CT Comms Cable

RS232/485 serial interface cable; 6 ft.; DB9 female connector on computer end; RJ45 connector on drive end.

CTD-PC-232-010

RS232 serial interface cable; DB9 female connector on computer end; DB9-P male connector on drive end, 10 ft.

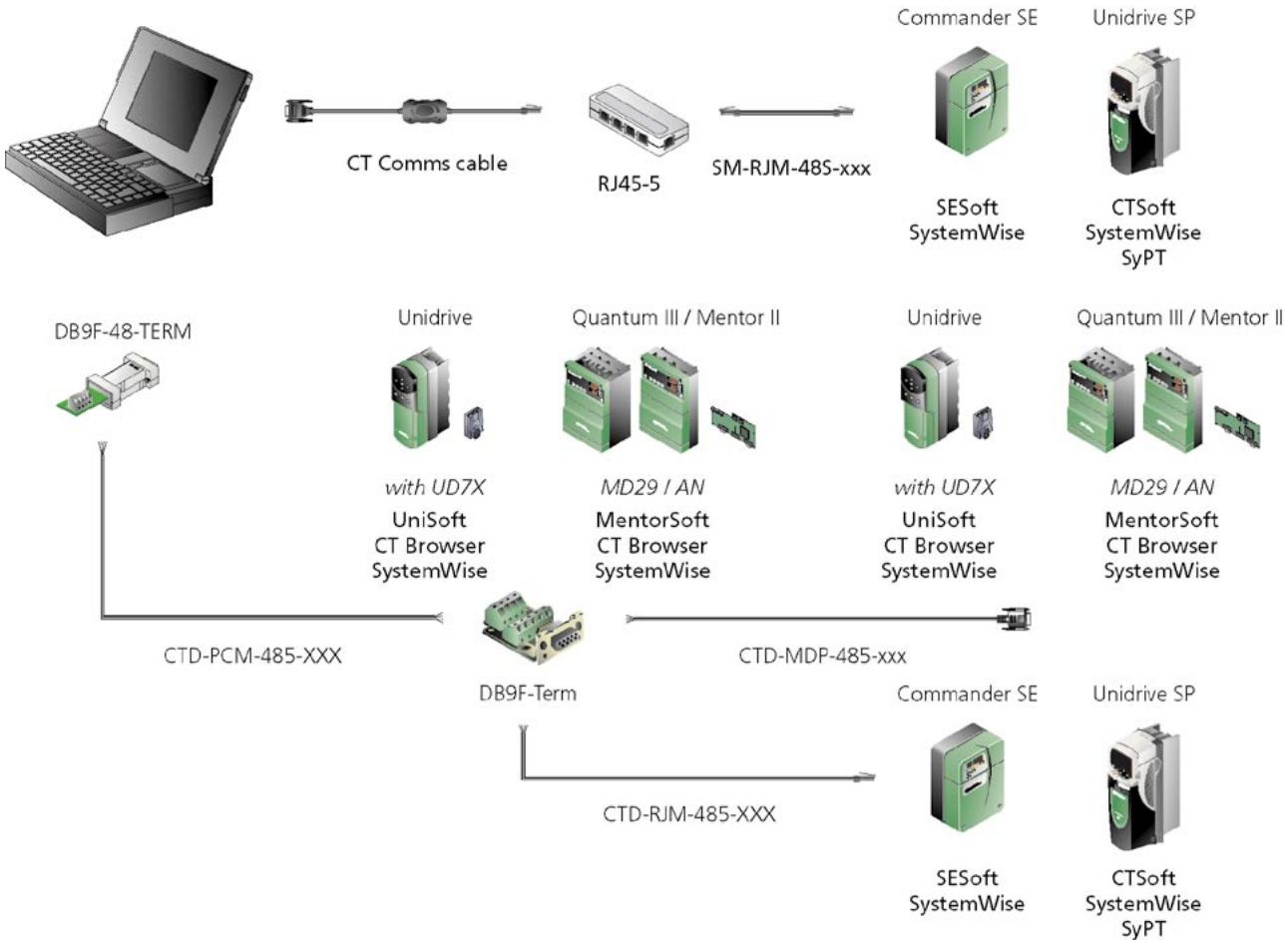
CTD-PC-485-010

Pseudo RS232/485 serial interface cable; labeled DB9 female connectors on both ends, 10 feet.

CTIU-PC-232-008

RS232 serial interface cable, DB9 female connector on computer end, DB9 male connector on CTIU end.

Software Interface Multi-drop Cables



SM-RJM-485-xxx

RS485 multi-drop cable with RJ45 connectors on both ends

CTD-PCM-485-xxx

RS485 cable for PC to DB9F-Terminal . Connects to DB9F-48-TERM at PC end.

CTD-MDP-485-xxx

RS485 cable for DB9F-Term to CTD connection.

CTD-RJM-485-xxx

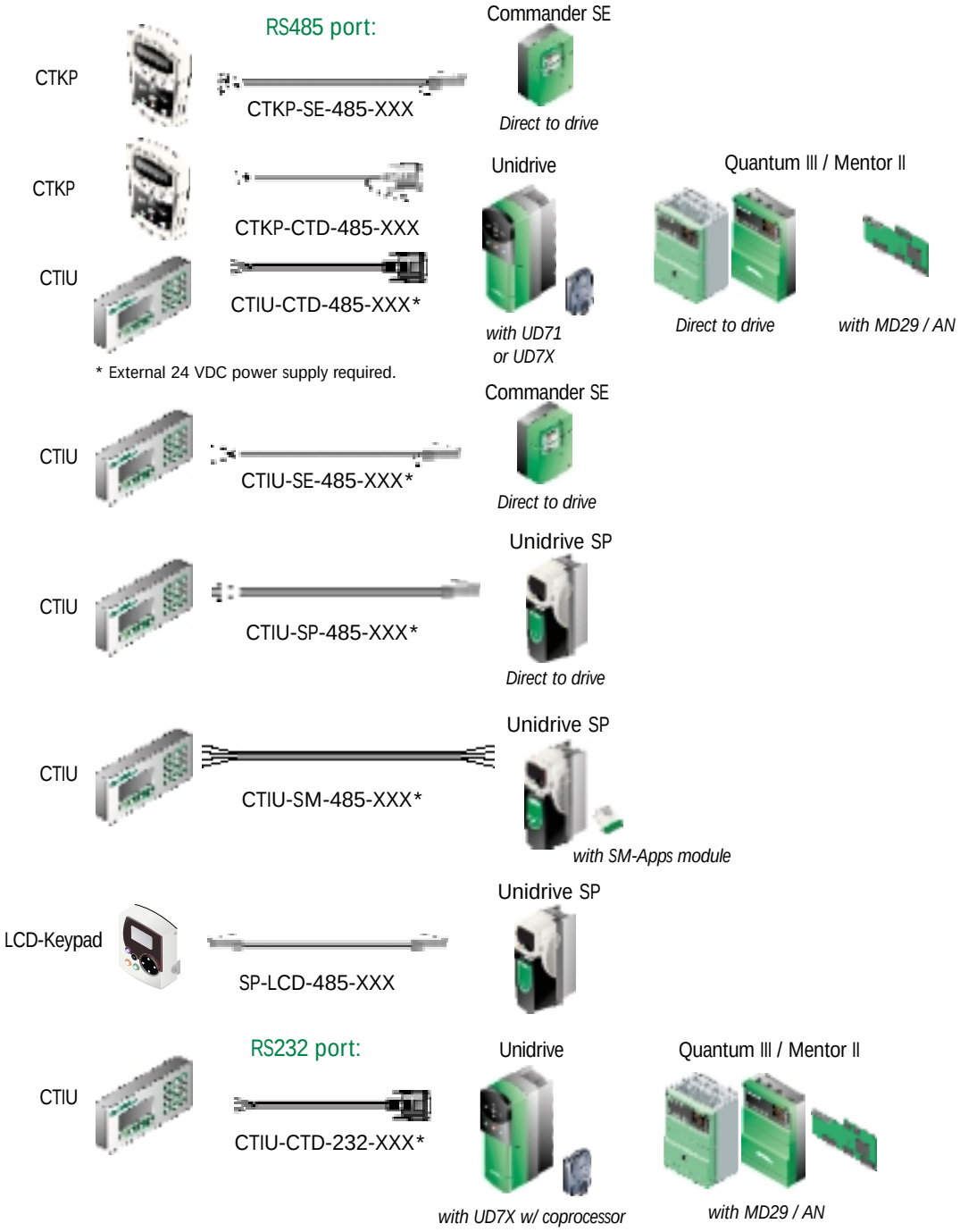
RS485 cabe for DB9F-Term to RJ45 connection.

Serial Interface Cable Order String

XXX -XXX- XXX- XXX

- Length: RS485 Standard 005, 010, 015, 025 ft. Custom available. RS232 10 feet maximum
- Serial Communication: 232 = RS232, 485 = RS485
- Destination: PC = Personal Computer, PCM = PC Multi-drop, MDP = CTD Multi-drop, RJM = RJ45 Multi-drop
- Drive: SE = Commander SE, SM = Unidrive SP, CTD = Unidrive, Quantum III / Mentor II

Operator Interface Single-drop Cables



CTKP-SE-485-XXX

RS485 cable; RJ45 connector on CSE end; wires dressed on CTKP end.

CTIU-SE-485-XXX

RS485 cable; RJ45 connector on CSE end; wires dressed on CTIU end.

CTIU-CTD-232-010

RS232 cable; DB9 male connector on drive end; wires dressed on CTIU end, 10 feet.

CTKP-CTD-485-XXX

RS485 cable; DB9 female connector on drive end; wires dressed on CTKP end; 2 additional wires connect to drive's 24 VDC power supply.

CTIU-CTD-485-XXX

RS485 cable; DB9 female connector on drive end; wires dressed on CTIU end.

CTIU-SP-485-XXX

RS485 cable; RJ45 connector on drive end; wires dressed on CTIU end.

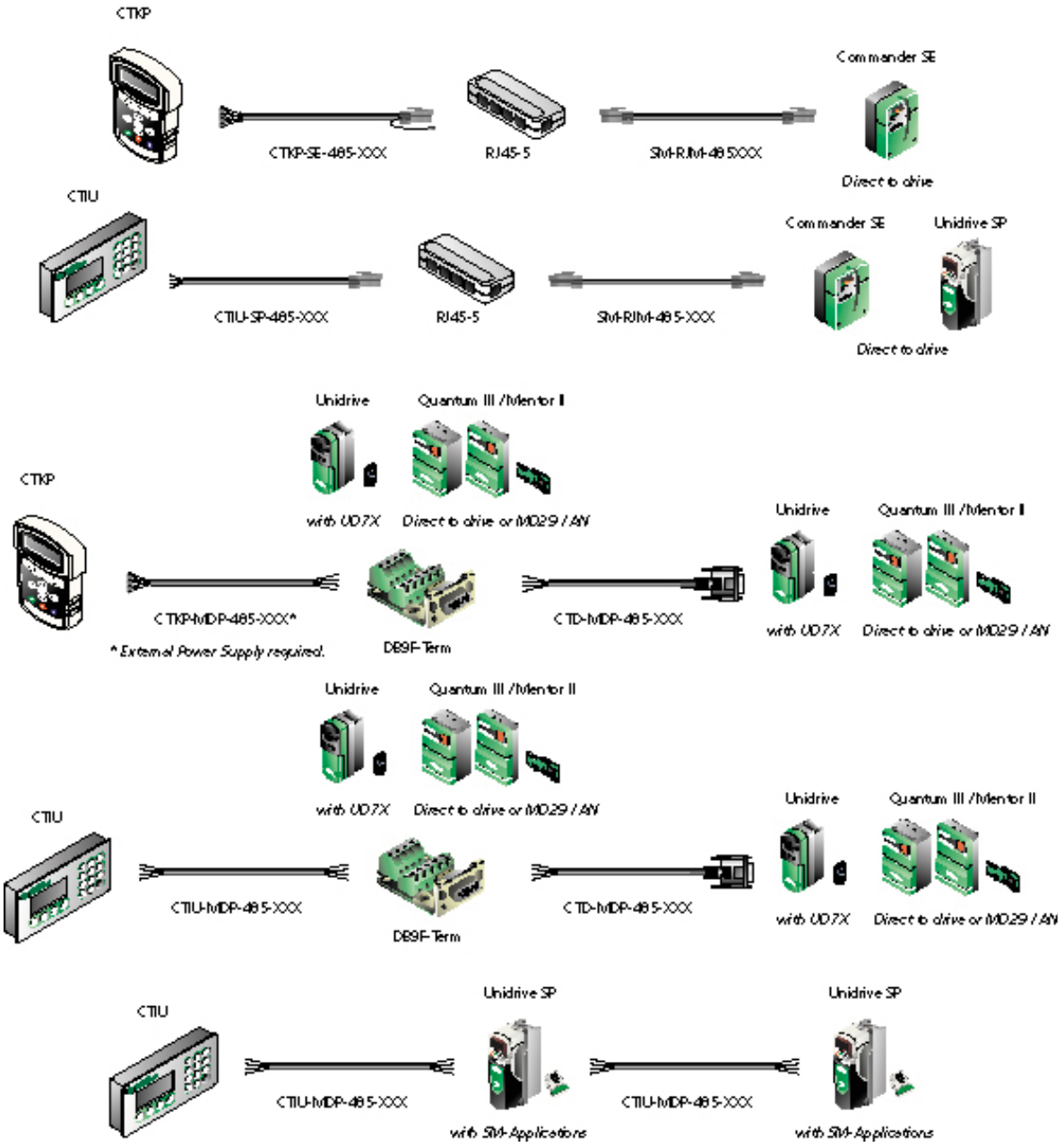
CTIU-SM-485-XXX

RS485 cable; wires dressed on CTIU end and SM-Applications end.

SP-LCD-485-XXX

RS485 cable with RJ45 connector on both ends for LCD Keypad and Unidrive SP. Available in 5ft., 10ft. and 15ft. lengths.

Operator Interface Multi-drop Cables



SM-RJM-485-XXX

RS485 cable for multidrop. RJ45 connector on both ends.

CTKP-MDP-485-XXX

RS485 multidrop cable. Angled connector at CTKP end, wires dressed at drive end.

CTD-MDP-485-XXX

RS485 multidrop cable. Wires dressed at both ends.

CTIU-MDP-485-XXX

RS485 multidrop cable. Wires dressed on both ends.

Operator Interface Cable Order String

XXXX- XXX- XXX- XXX

- Length: RS485 Standard 005, 010, 015, 025 ft. Custom available
  RS232 10 ft. maximum
- Serial Communication:
  232 = RS232
  485 = RS485
- Indentifier: SE = Commander SE, SP = Unidrive SP, CTD = Unidrive, Quantum III / Mentor II
  MDP = CTD Multi-drop
  RJM = RJ45 Multi-drop
  SM = SM-Applications
- Operator Interface: CTIU, CTKP